STATE OF MAINE
DEPARTMENT OF CONSERVATION
MAINE FOREST SERVICE
Insect And Disease Laboratory
168 State House Station~50 Hospital Street
AUGUSTA, MAINE
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Forest & Shade Tree - Insect & Disease Conditions for Maine

April 16, 2010

Welcome to the 2010 growing season, and to this series of the *Insect and Disease Conditions* reports! This year again Maine's forests are starting off the season in overall good health. The high moisture conditions of the past several years, and the relatively moderate winter has been an advantage to maintaining and increasing tree vigor. As always however, a few pathogens strongly dependent on the wet weather have the potential to produce high inoculum levels if high moisture conditions continue as the growing season begins. Similarly, the mild winter has not helped to reduce populations of several of our most troublesome insects. So, much will depend on the ensuing spring weather.

This year we will continue to survey for a multitude of insects and diseases, including exotic pests that are present or threatening the State, as well as natives – the "usual suspects." We ask again for your continued support in assisting us by staying informed and alert to problems that you may encounter in the field. Your efforts in protecting Maine's trees and forests are always greatly appreciated. We wish you all a successful and productive growing season.

Paper subscribers: if you haven't already done so, please send in your annual subscription forms. This will be the last report for 2009 subscriptions.

Laboratory Hours

Our business hours for 2010 will be 7:30 a.m. to 4:00 p.m. Monday through Friday, except for holidays. However, due to a very busy field schedule, we may not be able to staff the Insect and Disease Lab at all times. So if you call and receive no answer, please call back another time. And if you plan to visit the Lab, you may wish to call ahead just to make sure someone will be present to meet with you. The office will be closed on all State Government shut down days: April 20th, May 28th, July 2nd, August 6th and September 3rd during the 2010 growing season.

If you have questions on insect and disease pests of trees, you can now submit a clinic form directly on-line. We will also accept samples mailed in to our Lab in Augusta. Our street address and location remains the same (50 Hospital Street, Augusta), our mailing address is **168 State House Station, Augusta, 04333-0168**. Lastly, we have attached the following items to this report for your use:

* Advice and Technical Assistance Sheet.
* Insect & Disease Diagnostic and Report Form.

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Early Season Guide to Pest Management

The following table should assist you in the early season planning process. **Remember that this is just a guide** and that conditions will vary. Many pests may be managed with several other suitable products not listed here, but registered for use in Maine. This chart reflects those products that should be readily available and effective, *but not to the exclusion of others that may be suitable.* Information on any entry preceded by an * may be available on our website or can be requested by calling or writing to the Insect and Disease Laboratory, 168 State House Station, Augusta, Maine 04333-0168, Phone (207) 287-2431, Fax (207) 287-2432.

Insect or Disease	Cultural Controls	Chemical Controls
Apple Scab	Remove any fallen leaves not raked last autumn; plant resistant crabapples such as 'Adams', 'Baskatong', 'Beverly', 'Bob White', 'David', 'Dolgo', 'Donald Wyman', 'Liset', 'Red Jewel' and 'Sugartyme'. Other varieties of apple that are resistant to scab include Liberty, Pristine, Jonafree, Freedom, Redfree, Crimson, Enterprise, and William's Pride.	Propiconazole (Banner), Thiophanate methyl (T-Methyl), Chlorothalonil (Daconil), or Mancozeb (Dithane, Fore, Ziram) from bud break every ten days during wet weather. Captan, Manzate, and Polyram are also effective.
Ash Anthracnose	Before budbreak, remove any fallen leaves not raked last autumn. Compost the leaves well away from ash trees.	Propiconazole (Banner), Chlorothalonil (Bravo, Daconil, Mainsail WDG) at budbreak, and again 10 to 14 days later.
Ash Leaf Rust	None which are practical and effective.	Mancozeb, chlorothalonil (Daconil), or Thiophanate methyl (T-Methyl), applied at budbreak and repeated 2 to 3 times at 10-day intervals.
*Balsam Gall Midge		Diazinon or chlorpyrifos (Lorsban**) late May to early June.
*Balsam Shootboring Sawfly		Chlorpyrifos (Lorsban 4E**) or Diazinon AG500 3 times at 5 day intervals during the 2 weeks following the observation of activity of adults (mid-late April) or in the two weeks prior to normal balsam twig aphid spray dates.
*Balsam Twig Aphid		Diazinon** or chlorpyrifos (Lorsban**) at bud break.
*Birch Casebearer		Malathion or carbaryl (Sevin) applied after most or all of the cases have moved to opening buds.
Black Knot of Peach, Plum, and Cherry	Prune and destroy knotted twigs and branches.	Thiophanate methyl (T-Methyl or Fungo Flo) or chlorothalonil (Daconil) when trees are dormant and twice again at three week intervals after budbreak.
*Browntail Moth	Clipping of overwintering webs is only effective prior to the time larvae beginning actively feeding on emerging foliage (April).	The use of pesticides is a complex issue requiring professional assistance and there are restrictions on treating near water. Call for more information.
*Bruce Spanworm		Emerges early as buds begin to swell on northern hardwoods, especially beech. Larvae bore into buds. Controls not usually recommended.
Cyclaneusma Needle Cast of Scotch Pine	Use disease free planting stock; remove non crop Scotch pines from area.	Chlorothalonil (Bravo or Daconil) prior to bud break and immediately after wet periods throughout the growing season.
Diplodia Tip Blight	*see* Sphaeropsis Shoot Blight	*see* Sphaeropsis Shoot Blight
Dogwood Anthracnose	Remove any fallen leaves not raked last autumn; fertilize trees; prune out dead twigs and suckers; plant Chinese or Japanese dogwood instead of native flowering dogwood.	Chlorothalonil (Daconil), Thiophanate methyl (T-Methyl, Fungo Flo), Propiconazole (Banner), or Mancozeb (Dithane, Fore) at bud break and again three times at three week intervals.
Dothistroma Needle Blight		Copper sulfate (Kocide) or Thiophanate methyl (T-Methyl)
Dutch Elm Disease	Plant disease resistant elms; eliminate all potential beetle breeding elm material within 700 feet of trees to be protected.	Onyx (bifenthrin) or chlorpyrifos (Lorsban**) for beetle vector control on the lower 9' of trunk.

Insect or Disease	Cultural Controls	Chemical Controls
*Eastern Tent Caterpillar	Prune out egg masses on twigs prior to hatch; remove and destroy small tents as they develop (late April-early May)	Acephate (Orthene), carbaryl (Sevin), cyfluthrin or *Bt* on warm days when larvae leave tents to feed.
*Fall Cankerworm		Acephate (Orthene), *Bt*, carbaryl (Sevin), cyfluthrin (Tempo) applied while larvae are small (late May-early June on boxelder in Aroostook County). Early to mid May on elm and oak in southern Maine.
*Gypsy Moth	Scrape egg clusters from tree boles and larger branches into a container and destroy them. Complete before egg hatch (late April).	Acephate (Orthene), *Bt*, carbaryl (Sevin), cyfluthrin (Tempo), or diflubenzuron (Dimilin**) when larvae are actively feeding (early June).
Hawthorn Leaf Spot Mt. Ash Leaf Spot	Remove any fallen leaves not raked last autumn; plant resistant varieties such as *Crataegus crus-galli*.	Thiophanate methyl (T-Methyl or Fungo Flo), Chlorothalonil (Daconil), or Mancozeb (Dithane, Fore) as leaves unfold and at two week intervals until dry weather.
*Hemlock Woolly Adelgid	Watch for signs of infestation and report immediately.	Call for information.
Heterobasidion annosum (Fomes annosus) Red Pine Root Rot	Restrict thinning operations to between December and February, when spore dispersal is minimal.	Disodium octaborate tetrahydrate (Cellu-Treat) applied to freshly cut stumps (within three days of tree felling).
Horse Chestnut Leaf Blotch	Remove any fallen leaves not raked last autumn.	Thiophanate methyl (Fungo Flo) or chlorothalonil (Daconil) at bud break and twice more at 14 day intervals.
*Larch Casebearer		Carbaryl (Sevin) or cyfluthrin (Tempo) applied after most cases have moved to the expanding needle clusters (late April to early May).
Maple Anthracnose	Before budbreak, remove any fallen leaves not raked last autumn. Compost the leaves well away from maples.	Thiophanate methyl (Fungo Flo) at bud break and twice again at 10-14 day intervals.
Peach Leaf Curl		Chlorothalonil (Bravo) or Ferbam (Carbamate) or Ziram applied as full coverage spray when trees are dormant.
*Pear Thrips		Controls and timing not well understood. Thrips are active on expanding maple.
Pine-Pine Gall Rust of Jack and Scotch Pine	Prune rust galls from lightly infected trees; rogue heavily infected trees from plantations before May 1. Use disease free planting stock.	None at this time.
Rhabdocline Needle Cast and Swiss Needle Cast of Douglas-Fir	Rogue severely infected trees from plantations before May 1.	None at this time.
*Satin Moth		Treat infested poplars and willow in mid to late May with *Bt*, carbaryl (Sevin) or cyfluthrin (Tempo).
Sirococcus Shoot Blight of Spruces	Prune out affected twig tips by mid-summer, and destroy.	Chlorothalonil (Daconil, Bravo), at bud break and again 10 to 14 days later. The second application should be applied sooner if wet weather conditions prevail.
Sphaeropsis Shoot Blight of Red, Scotch, and Austrian Pines	Use disease free planting stock; remove non-crop-tree hard pines from area. Prune and burn lower, heavily infected and dead branches.	Chlorothalonil (Bravo), copper sulfate (Kocide), or Thiophanate methyl (T-Methyl, Topsin) at bud break and again when shoots are half grown.
*Spruce Gall Adelgids	Prune off and destroy new developing galls in mid to late June.	Treat infested trees just prior to bud break with dormant oil, carbaryl (Sevin) chlorpyrifos (Lorsban**) or imidacloprid (Merit). Controls can also be applied in the fall.
Spruce Needlecast of White and Colorado Blue Spruce (Rhizosphaera kalkhoffii)	Prune, remove, and destroy the most heavily infected, lower branches on larger trees.	Chlorothalonil (Bravo, Daconil), or copper sulfate (Bordeaux mix) as buds break and again 10 days to two weeks later.
*Ticks	Watch for ticks throughout the field season (April-November). Avoid high risk areas if possible, inspect yourself daily and remove ticks and use repellents as directed.	Compounds containing DEET can be used as repellents. Those containing the toxicant permethrin can be used on clothing as directed.

Insect or Disease	Cultural Controls	Chemical Controls
*Viburnum Leaf Beetle	Where possible, prune off any twigs with scabby, egg-filled holes prior to May 1st.	Watch in mid - late May) for developing larvae and treat with acephate (Orthene), carbaryl (Sevin), or chlorpyrifos (Lorsban**) or imidacloprid (Merit).
*White Pine Blister Rust	Prune cankered lateral branches from trees and excise stem cankers by removing bark at least four inches above and below and two inches either side of discolored bark. Remove species of Ribes from within 1000 feet of white pine forests or plantations.	None at this time.
*White Pine Weevil	Refrain from planting white pine or spruce for reforestation in open areas, on heavy clay soils, or on heavily sodded fields. Correctively prune damaged trees to establish new leaders.	Apply control in the spring once there have been several days above 60 degrees Farenheit. Use Pyrenone Crop Spray, Astro, Onyx, Talstar or Dibrom 8 at 14-20 day intervals until June. Commercial Forest and Christmas Tree Plantations: diflubenzuron (Dimilin**) or chlorpyrifos (Lorsban**).

***NOTE**: These recommendations are not a substitute for pesticide labeling. Read the label before applying any pesticide. Pesticide recommendations are contingent on continued EPA and Maine Board of Pesticides Control registration and are subject to change.

Caution: For your own protection and that of the environment, apply the pesticide only in strict accordance with label directions and precautions.

****Restricted-use pesticide may be purchased and used only by certified applicators.

Out-of-State Firewood Banned

The legislature banned the movement of firewood from outside the State of Maine on April 1, 2010. Rules for implementing the law are under development and will go into place as soon as possible. Outreach efforts educating the public on the issue of transporting pests in firewood are ongoing and compliance with the law will begin with warnings.

An Act To Regulate the Transportation of Firewood

Sec. 1. 12 MRSA § 8307. Prohibition on bringing firewood into State

SUMMARY

This bill prohibits the transportation of firewood into the State. The Director of the Bureau of Forestry within the Department of Conservation is authorized to use rulemaking to implement the prohibition. Firewood that is packaged and clearly labeled as "kiln dried" or certified by the United States Department of Agriculture, Animal and Plant Health Inspection Service is exempt from the prohibition. This bill also requires the director to use available resources to conduct surveillance to detect the presence of the emerald ash borer and the Asian longhorned beetle.

Quarantines

Maine has five forestry-related state quarantines: (1) *Ribes* spp. (currants and gooseberries) because they are alternate hosts for white pine blister rust, (2) gypsy moth, (3) European larch canker, (4) hemlock woolly adelgid and (5) pine shoot beetle. The quarantine on *Ribes* prohibits planting, possessing or propagating currant or gooseberry plants in some parts of the State and

prohibits the species European black currant, *Ribes nigrum*, and its cultivars throughout the State. The four other forestry-related quarantines restrict the movement of certain forest products that have the potential to spread specific tree pests or diseases. Regulated material may move freely within their respective quarantine zones, but must go to facilities with compliance agreements and may require inspection if they are moved outside of the quarantine zone. The compliance agreements require certain practices of the receivers to help reduce the risk of spread of the target insect or disease organism.

New state rules for the European larch canker and gypsy moth quarantines were finalized in December of 2009. These rules do not represent a significant change of practice, but were required to demonstrate parallel State and Federal quarantines.

If you have any questions regarding forestry-related quarantines or moving or receiving regulated material, please contact Allison Kanoti at the Maine Forest Service, allison.m.kanoti@maine.gov or (207) 287-3147. Maps and lists of quarantined towns and information about all the forestry-related quarantines in Maine can be found at our website: maineforestservice.gov/idmquar.htm. Thank you for your continued cooperation in keeping these forest pests and diseases contained.

Insects

***Balsam Gall Midge** (*Paradiplosis tumifex)* - Balsam gall midge populations were high in places in 2009, particularly downeast. Christmas tree growers should be checking their plantations this spring for the midges. The balsam gall midge larvae feed on the new foliage and cause the needle to deform and form a gall around the growing larvae. After the larvae finishes feeding and drops to the ground at the end of summer, the damaged needles also fall off. Populations can get high enough so that the tips of branches are denuded. This makes Christmas trees and wreath brush unmarketable for a few years until the foliage fills in.

In mid to late May watch for small orange midges, they are often easiest to see in the early evening when the breezes die down. Treatment is applied approximately two weeks after adults have been seen in large number (late May to early June) as the new needles flare and begin to flatten. Watch tree development, it may be early this year.

***Balsam Shootboring Sawfly** (*Pleroneura brunneicornis)* – These sawflies tend to more abundant in even numbered years so they may be more prevalent in areas troubled by them in the past. Adults are active at the end of April flying around the fir trees. The females lay eggs on the buds and larvae feed before the buds expand. The resulting damage appears as a little "button" of foliage with a hollow stem – in May you can sometimes find the larvae still in the shoot. This sawfly damage can be mistaken for frost damage. Damage from light infestations can be pruned off.

***Balsam Twig Aphid** *(Mindarus abietinus)* – Balsam twig aphids appear early in the spring and suck the juices from the tender new foliage of fir trees. This feeding causes twisting and distortion of the foliage. It does not harm the tree but makes it less attractive for Christmas tree sale. Twig aphid tends to be a perennial problem for Christmas tree growers. Check for aphids

in May before budbreak; if trees were damaged last year they may need to be treated this year as the population builds up from year to year.

***Browntail Moth** (*Euproctis chrysorrhoea*) – The browntail moth winter survey has been completed for 2010. Numbers are very high at the southern end of Merrymeeting Bay in the towns of Bath, Bruswick, West Bath, Topsham and Bowdoinham. Webs in individual trees or a few trees were found from Portland to Freeport and in Augusta. Also Vaughn Island off Cape Porpoise in Kennebunkport has excessively high numbers of webs. Larvae survived the winter with no ill effects and the webs are large and healthy.

Browntail moth larvae feed on the emerging foliage of oak, apple, birch, cherry, hawthorn, rose and other hardwoods. They emerge from their overwintering webs starting the end of April, even before the buds have broken. They continue to feed on leaves and molt their hairy skins through June when they pupate leaving their last hairy skin behind. Besides defoliating trees and causing branch dieback and tree mortality, all those hairs make many people itch.

Pruning out webs and destroying them (drop them in soapy water) may eliminate the problem if all the webs are within reach. Clipping should be completed by the end of April and insecticide applications (if warranted) should be made during the month of May by a registered pesticide applicator. There are specific regulations for controlling browntail moth near coastal waters. Be sure to check on the current Board of Pesticide Control regulations before treatment.

***Eastern Tent Caterpillar** (*Malacosoma americanum*) – The first eastern tent caterpillar webs were seen April 4th in South Berwick and in Whitefield on April 5th. Look for tiny webs at the crotches of crabapple and cherry tree branches. Remove webs in the evening or early morning when the caterpillars are in the web. Use a wet soapy rag and pull the web out of tree and drop in a bucket of soapy water. (No need for flames or kerosene.) Although the tents are unsightly, these insects rarely harm the trees.

***Gypsy Moth** *(Lymantria dispar)* – 2009 surveys turned up very few gypsy moth egg masses. Populations are predicted to remain low, and no measurable defoliation is expected. The state gypsy moth quarantine area was expanded in early 2010 to include the following additional areas: Mount Chase, T5 R8 WELS and T6 R8 WELS in Penobscot County; Bigelow and Lower Enchanted townships in Somerset County and the entirety of Baxter State Park.

***Hemlock Woolly Adelgid** *(Adelges tsugae)* – The mild winter temperatures are expected to have favored hemlock woolly adelgid populations. Now is a good time to check your hemlocks for signs of this insect. Consider removing your birdfeeders from the beginning of April through the end of August to help reduce the risk of introducing this and other forest pests to your backyard.

***White Pine Weevil** *(Pissodes strobi)* - Control of white pine weevil should be underway in southern parts of the State by the time you receive this publication. The adults lay eggs and the larvae feed on the terminal leader of pine and spruce in early spring. On ornamentals, covering the leader with a nylon stocking secured with a twist tie can block the female from laying eggs. Remove the covering before the leader begins to elongate. This of course is not practical on a

large scale and chemical control may be warranted for Christmas tree or timber plantations. See chemical control recommendations listed above.

Diseases

Foliage and Needle Diseases – Early spring is the time to apply fungicides to prevent infection of new leaves and needles from many foliage diseases. If your shade or ornamental trees were severely affected by anthracnose diseases (on broadleaved trees) or needle spots and premature needle drop last year, careful consideration should be given to using fungicides this season. The most serious problems last year were spruce needlecast of white and Colorado blue spruces (***Rhizosphaera*** needlecast), and tip blight of hard pines (***Diplodia*** or ***Sphaeropsis*** tip blight). Fungicides that control these diseases are protectants, and must be applied before needle or leaf infection takes place. This requires a first application of the fungicide at the time of budbreak. For most hardwood species, budbreak usually occurs by the first week in May. For conifers, budbreak usually occurs about two to three weeks later. A second application is suggested when the foliage is near fully developed, to protect leaf and needle tissues as they grow and expand. A second application usually follows the first by a period of about ten to fourteen days, depending on weather. However, this season is already off to a *very early start*, so fungicide applications should be adjusted accordingly. Growth of many hardwoods in the central and southern portions of the state will be at the right stage for the first application of fungicide by the time this newsletter is received.

Red Pine Root Rot (*Heterobasidion annosum*) – This root disease has caused damage in red and occasionally white pine stands for several decades. The disease is most often recognized in red pine plantations where stand thinning has created freshly-cut stumps that the fungus can readily colonize. Once the pathogen has entered into the root system of the cut stumps, it can travel via root grafts to other, healthy trees and can result in chronic mortality. Many red pine plantations were established after salvage harvesting of spruce and fir during the spruce budworm epidemic of the 1970's and 1980's. Many of these plantations are ready for thinning, or have already been thinned once. These managed stands are highly susceptible to *H. annosum* root rot.

A product (Cellu-Treat Dot Wood Preservative, Nisus Corp.) has recently come on the market, and is registered in Maine for control of *H. annosum*. The active ingredient in Cellu-Treat is Disodium Octaborate Tetrahydrate, an inorganic borate used in many wood preservative applications. The product is applied as a 5% active solution, using one-half pound of Cellu-Treat per gallon of water. The solution can be applied to freshly-cut stumps (within three days of tree-felling) with a hand-held or back pack sprayer. One gallon can treat approximately 2000 six-inch stumps, or 480 twelve-inch stumps.

Tar Leaf Spot (*Rhytisma acerinum*) – Tar leaf spot disease on Norway maples was widespread and very conspicuous last year. Some trees were considerably defoliated by late July as a result. A few of the most severely defoliated trees initiated new buds and re-foliated in late summer. Because a second flush of foliage requires a significant amount of the trees energy reserves, and because the re-foliation occurred late in the season, some branch and crown dieback may be

expected. The condition was not widespread, and is not likely to affect tree survival, but may be noticeable in some towns.

Weather-Related Damage to Trees - After a comparatively mild winter, there has been little of the typical winter drying injury that is usually seen on evergreens. Since moisture levels remained at or well above the norm, exposed foliage was not winter-stressed. While tree condition generally looks good, there has been reported winter-dieback of ornamental Andromeda (*Pieris* spp.) and *Rhododendron* spp. in the Yarmouth to Cape Elizabeth area. Other exposed coastal areas may also have experienced some damage to these or similar ornamentals.

Another advantage of the lack of snow this winter has been the reduced use of salt for the de-icing of roadways. Salt injury to trees and other roadside vegetation is expected to be minimal this year.

Last summer we reported on what appeared to be an unusual growth response to the excessively wet weather we experienced in June and July. At many locations throughout mid- to southern Maine, branch tip and leader extension continued until quite late in the season. This was recognized by the red juvenile foliage that developed during the summer, and even into August. At least two species, red oak and red maple, showed this response. These tissues may have been less hardy to early fall frosts and early hard freezes. If any dieback has occurred from early fall freezing, it will show up as bare branch tips as buds break and new leaves begin to form.

White Pine Blister Rust – (*Cronartium ribicola*) Early spring is an ideal time to scout the woodlot for currants and gooseberries (plants in the genus *Ribes*), which serve as a host for the fungus which causes white pine blister rust. *Ribes* plants are some of the first vegetation to leaf out in early spring, thereby becoming easily located for removal or treatment. Removal of *Ribes* plants from around white pine stands has been an effective control measure for this disease since the practice was first initiated in Maine around 1918.

Please keep in mind that the ***importation, possession, planting, and culture of*** *currants, gooseberries, Jostaberries, Worcesterberries* and all other species of ***Ribes*** is prohibited by law in the quarantine area of Maine. In addition, the ***importation, possession, planting, and culture of any Ribes nigrum*** (European black currant) ***or its varieties or cultivars*** is prohibited throughout the entire state. Please check our *Annual Summary Report*, or our website to review details of the quarantine boundaries and a complete list of the towns included.

Conditions Report No. 1, 2010
Maine Forest Service
Forest Health and Monitoring